NON-PUBLIC?: N
ACCESSION #: 8805030386
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Yankee Nuclear Power Station, Rowe, Ma PAGE: 1 of 3

DOCKET NUMBER: 05000029

TITLE: Reactor Scram/Turbine Trip on Low Steam Generator Level
EVENT DATE: 03/26/88 LER #: 88-003-00 REPORT DATE: 04/25/88

OPERATING MODE: 1 POWER LEVEL: 085

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: David J. Kowalski, Senior Plant Engineer TELEPHONE #: 413-424-5261

COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: JB COMPONENT: RJX MANUFACTURER: F180
REPORTABLE TO NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: On March 26, 1988, while at 85% power and returning to normal full power operation, there was an alarm for SG high-low level, immediately followed by an automatic reactor scram and turbine trip on low SG levels. Just prior to this event, loop No. 2 feedwater flow began oscillating and loop No. 4 feedwater flow started decreasing. As a result, the levels in No. 2 and 4 steam generators were decreasing rapidly towards the trip setpoint. The reactor scram and turbine trip occurred at 0529 hours. The NRC was notified via ENS at 0603 hours.

As part of the emergency procedures, the operators restarted the feedwater pumps. All automatic safety systems functioned as designed and the plant responded as expected.

The root cause of this event is the failure of the power supply for SG level control channels on No. 2 and 4 steam generators. Corrective action involved the replacement of the failed equipment. No other action is deemed necessary at this time. As a result of this event, there was no adverse effect to the public health or safety. This is the first occurrence of this nature at this facility.

(End of Abstract)

On March 26, 1988, while at 85% power and returning to normal full power operation, the No. 2 SG level control system started to exhibit erratic behavior. At the same time, loop No. 2 feedwater flow was oscillating (spikes in flow were predominantly in the low direction) and loop No. 4 feedwater flow was decreasing. As a result, the levels in No. 2 and 4 steam generators were decreasing rapidly towards the trip setpoint. Loop No. 1 and 3 feedwater flows and SG levels were not affected and remained relatively stable.

The alarm for SG high-low level activated and the operators attempted to maintain an adequate SG level by switching to manual control but were unsuccessful. An automatic reactor scram and turbine trip on low SG levels occurred at 0529 hours. The NRC was notified of this event via ENS at 0603 hours.

Immediately following the automatic plant trip, operators began to implement the appropriate actions of Procedure No. OP-3000, "Emergency Shutdown from Power." As expected, the No. 2 emergency diesel generator automatically started and supplied the No. 2 480 volt Emergency bus when the main generator was taken out of service. The 2400 VAC buses were successfully crosstied and the No. 2 and 3 main coolant pumps were restarted. As part of the emergency procedures, the operators also restarted the feedwater pumps.

The root cause of this event is the failure of the power supply for SG level control channels on No. 2 and 4 steam generators. A post-trip investigation revealed that the power supply developed an AC ripple greater than one volt. Normal ripple should be approximately fifty millivolts; the manufacturer's specifications indicate that the AC ripple should be less than 200 millivolts. The AC ripple on the DC power to the No. 2 and 4 SG level control channels caused the erratic behavior and eventual loss of level control.

The power supply failure affects both automatic and remote manual SG level control. This explains the operators' inability to maintain an adequate SG level when they switched to manual control. To maintain the correct SG level, it would have been necessary to take local manual control at the feedwater regulating valves.

Corrective action for this event involves the replacement and

subsequent repair of the failed equipment. The manufacturer of the Multinest Power Supply (Model No. 2ARPS05-A6+BB4) is the Foxboro Company. At this time, no other action is deemed necessary.

As a result of this event, there was no adverse effect to the public health or safety. This is the first occurrence of this nature at this facility.

ATTACHMENT # 1 TO ANO # 8805030386 PAGE: 1 of 1

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Star Route, Rowe, Massachusetts 01367

YANKEE

April 25, 1988

FYR 88-53

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Subject: Licensee Event Report No. 50-29/88-03

Reactor Scram /Turbine Trip On Low Steam Generator Level

Dear Sir:

In accordance with 10 CFR 50.73(a)(2)(iv), the attached Licensee Event Report is hereby submitted.

Very truly yours,

/s/ Normand N. St. Laurent
Normand N. St. Laurent
Plant Superintendent

DJK/bjb
Enclosure

cc: (3) NSARC Chairman (YAEC)
(1) Institute of Nuclear Power Operations (INPO)
(1) USNRC, Region I

(1) Resident Inspector

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